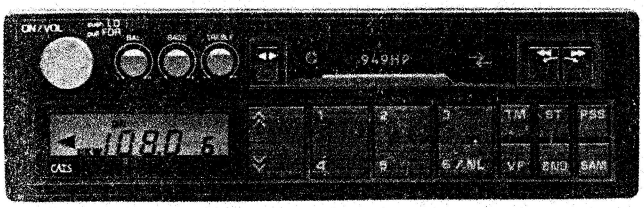
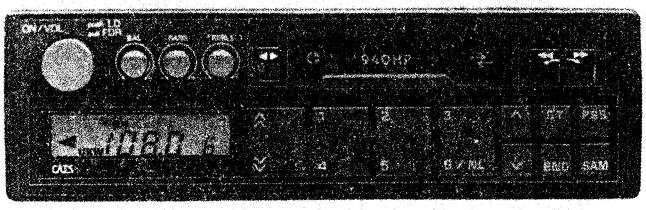
Clarion Co., Ltd.
Export Division–22-3, Shibuya 2-chome, Shibuya-ku, Tokyo, 150 Japan
Tel: 03-400-1121 Fax: 03-400-8679 Telex: J22908, J22152
Service Dept.–50 Kamitoda, Toda-shi, Saitama, 335 Japan Tel: 0484-43-1111 Telex: J2962628 CLAFAC J

Clarion Service Manual



949HP



940HP

Model 949HP (PE-9096A-A)
940HP (PE-9097A-A)

■SPECIFICATIONS:

Radio section

Circuit system: Superheterodyne
Tuning system: Electronic tuning
Receiving frequency: LW 153kHz to 281kHz
MW 531kHz to 1,602kHz
UKW(FM)
87.5MHz to 108MHz
Intermediate frequency:
LW, MW 459kHz
UKW(FM) 10.7MHz

Tape section

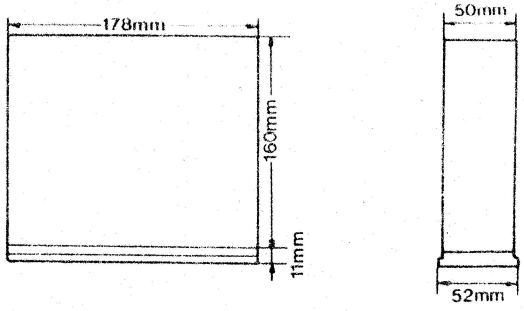
Reproduction system: Auto reversing
4 track, 2 channel stereo cassette tape playback
(Monaural also capable)
Tape speed: 4.76cm/sec. (1⅞ ips)

Composite

Load impedance: 4Ω×4
Power output: 18W×2
(at 10% distortion TYP.)
More than 30W×2

Power supply voltage: DC 14.4V(10.8V to 15.6V)
Negative ground
Power consumption: Less than 7A
(at max. output)

Dimensions:



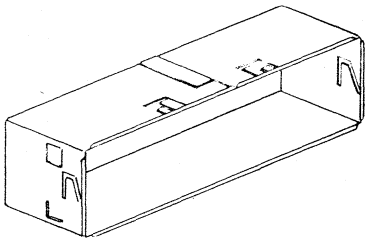
Weight: 1.6kg

■COMPONENTS VIEW:

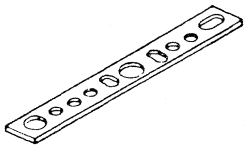
- **949HP (PE-9096A-A)**
- **940HP (PE-9097A-A)**

Main unit

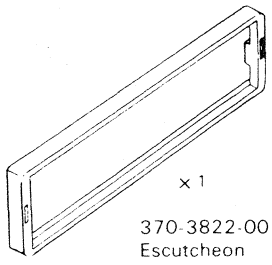
Mounting bracket 300-7110-00 1



Mounting bracket 300-6954-00 1

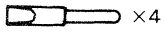


Parts bag 922-1396-00 1

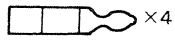


370-3822-00
Escutcheon

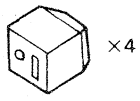
Parts bag 921-8203-00(only 949HP) 1



073-0649-00
Terminal

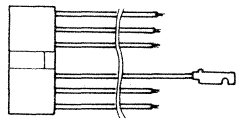


073-0650-00
Terminal

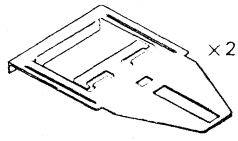


074-0804-00
Outlet socket

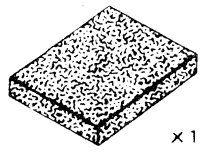
Extension lead 852-9213-00(only 940HP) 1



Parts bag 921-8022-00 1



330-8216-00
Hook plate



345-2934-00
Cushion

345-3653-01
Spacer

725-0181-00
Plate nut

700-5016-10
Tap screw

722-0314-00
Nut

Lock pin 335-1360-00 1

■FEATURES:

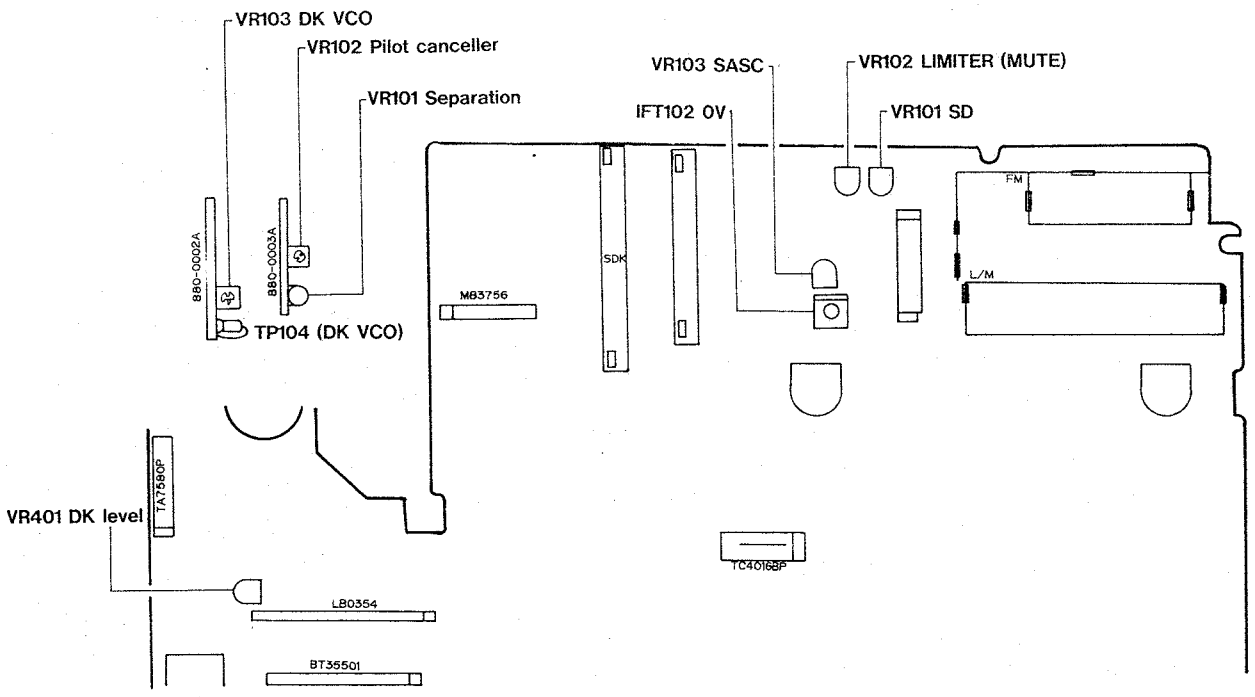
- MW/LW/UKW-MPX electronic tuning radio with auto reverse stereo cassette player (FF, REW lock).
- Provided radio traffic information (VF) system. (949HP)
- LD (Loudness).
- AR C-30 mechanism.
- NL (Noise Limiter)

■ADJUSTMENT:

Adjustment item	Adjustment point	Procedure
0V fine adjustment	IFT102	1. Tune 98.1MHz and input a 25dB non-modulated SSG signal. 2. Connect a digital volt meter 0V TP. 3. Adjust IFT102 so that the voltage is 0V. 4. May adjust 0V by receiving weak broadcasting signal.
Stop seek sensitivity	VR101	1. Tune at 98.1MHz, input a 25dB non-modulated SSG signal. 2. Adjust VR101 so that the voltage of SD TP is 5V.
Limiter (MUTE)	VR102	1. Tune at 98.1MHz, input 55dB SSG signal. 2. Adjust VR to make the set output 0dB (2.45V). 3. Reduce the output of SG 12dB. 4. Adjust VR102 untill output level decrease to 3dB.
SASC	VR103	1. Tune at 98.1MHz, input an 65dB, 7kHz modulation frequency, 30% modulation degree SSG signal, and then turn on ST. SW. 2. Adjust the output level of the volume controller to 0dBm (0.775V). 3. Set the SSG output to 40dB and adjust VR103 so that the output level is −3dB
MPX Separation	VR101 (880-0003A)	1. Tune at 98.1MHz, connect the output of a stereo modulator to the external modulation terminal, and input a 65dB SSG signal. 2. Set the stereo modulator to the L or R ch and adjust VR104 so that the maximum separation is obtained.
Pilot canceller	VR102 (880-0003A)	1. Tune at 98.1MHz, input a 55dB, modulation (PL 10%). 2. Adjust VR105 so that output of the set is minimum.
DK VCO (949HP)	VR103 (880-0002A)	1. Tune at 98.1MHz 100% (Main + PL + DK + SK + BK) modulated SSG signal, and turn on VF. SW. 2. Connect the frequency counter to TP and adjust VR106 so that the counter indicates 125Hz. In the case.
DK level (949HP)	VR401	1. Tune at 98.1MHz 10% modulated SSG signal, and turn on VF. SW. 2. At the time of minimum sound volume, adjust VR401 to make the speaker output 0.775V.

[NOTE] After the adjustment of frequency range, be sure that;
(1) Band edge frequency of LW shall be 148.5kHz −20kHz
(2) Band edge frequency of UKW shall be 87.5MHz +100kHz
−160kHz
at low end. And shall be lower than 108.16MHz at upper end.

● SPECIFICATION —LIMIT— Quieting sensitivity: MW Less than 33dB (at 20dB S/N)
LW Less than 40dB (at 20dB S/N)
UKW Less than 12dB (at 30dB S/N)
Stereo separation: UKW More than 20dB



■ADJUSTMENTS: (TAPE MECHANISM)

1. Head Azimuth Adjustment (See Fig. 1)

o Improper head azimuth is one of the causes which give rise to poor sound quality, crosstalk, etc. at the time of playback. If azimuth of the head is not proper, adjust as follows. However, to perform this adjustment, load the test tape and use the adjustment use screwdriver, inserting it through the hole in the lever mechanism (frame ass'y).

1) Play the test tape (315Hz, −10VU) and adjust the amplifier's volume control and balance control so that the output levels (gains of the playback system) of the left and right channels become equal.

2) Then play the test tape (8kHz, −10VU) and adjust the head azimuth adjusting screw so that the output level in both the forward and reverse directions of play becomes close to the respective peak (maximum output level) point. Then lock the head azimuth adjusting screw.

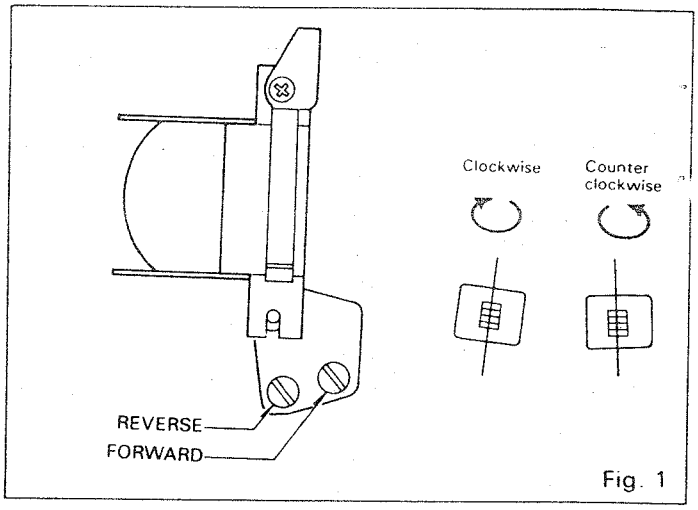


Fig. 1

2. Fast Forward, Rewind Gear Alignment (See Fig. 2)

o If the mechanism does not operate properly and abnormal sound (gear noise) is produced at the time of fast forward and rewind, first of all check whether the sound is produced during fast forward (FF) or rewinding (REW). If it is produced during FF, adjust by bending the claw (A) to the left or right with radio pliers, etc., and if it is produced during REW, adjust by bending the claw (B) in the same manner. Adjust so that the clearance at this time between the flywheel and FF. REW gear becomes about 0.1 to 0.2mm.

1) If the gear engagement is loose and the gears produce a large noise, bend the claw away from the center line.

2) If the gear engagement is too hard and there is no clearance between the gears, bend the claw toward the center line.

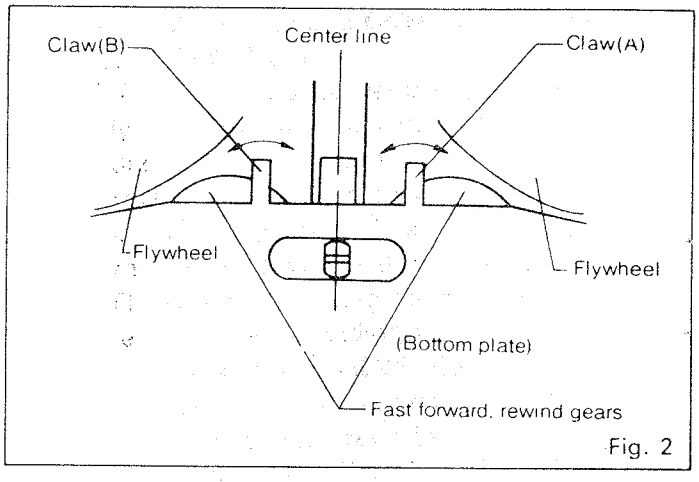


Fig. 2

3. Adjustment of Power Switch (See Fig. 3)

o If power does not turn on when pack is inserted (loaded), or if power does not turn off after ejecting the pack, and the underlying cause is found to be misadjustment of the power switch, adjust the switch at proper position by bending upward or downward the adjusting claw of the guide arm ass'y by means of radio pliers, etc. However, make sure that at the time of ejecting there is a clearance of at least 0.2mm to 0.3mm between the body of the switch and the switch lever.

1) If power does not turn on when loading pack, adjust by bending the adjusting claw downward.

2) If the gear engagement is too hard and there is no clearance between the gears, bend the claw toward the center line.

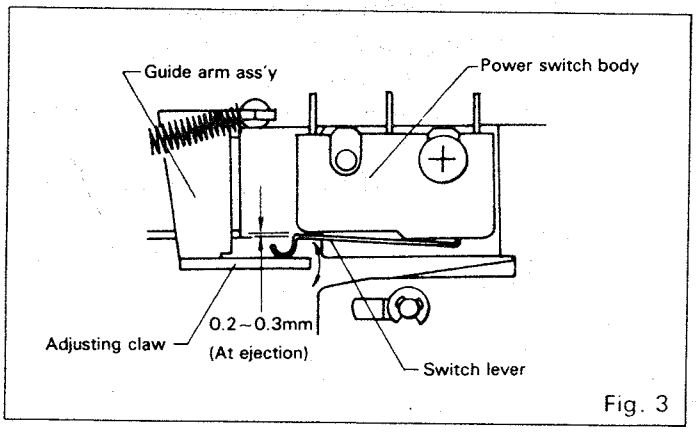


Fig. 3

EXPLANATION OF IC's:

LB0354 051-0619-00 LOUDNESS with MUTING

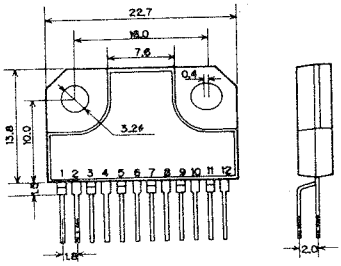
Refer to the description in Manual PE-9094A(959HX)

MB3756 051-0526-00 Constant-voltage Source

Refer to the description in Manual PE-9065A(E921)

TA7250BP 051-0748-00 / TA7251BP 051-0815-00 23W BTL Power Amp.

OUTWARD FORM



MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Peak Supply Voltage (0.2sec)	Vcc surge	50	V
DC Supply Voltage	Vcc DC	25	V
Operating Supply Voltage	Vcc opr	18	V
Output Current (peak)	Io peak	9	A
Power Dissipation	PD	25	W
Operating Temperature	Topr	−30~85	℃
Storage Temperature	Tstg	−55~150	℃

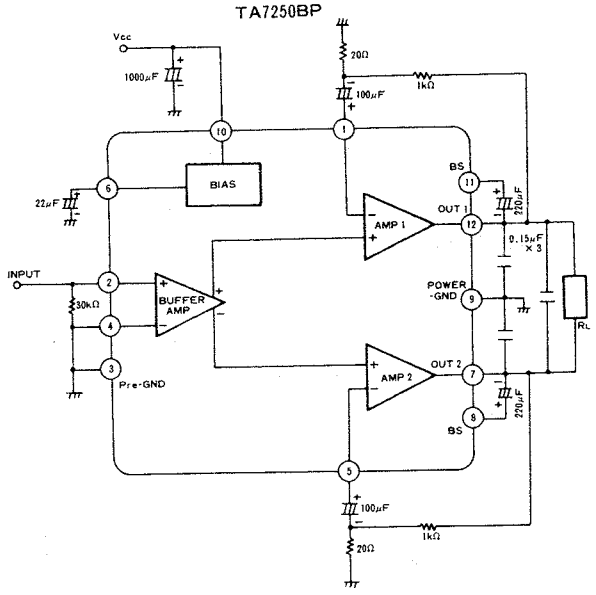
ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, Vcc=13.2V, RL=4ohm, Rg=600ohm, f=1kHz, Ta=25℃)

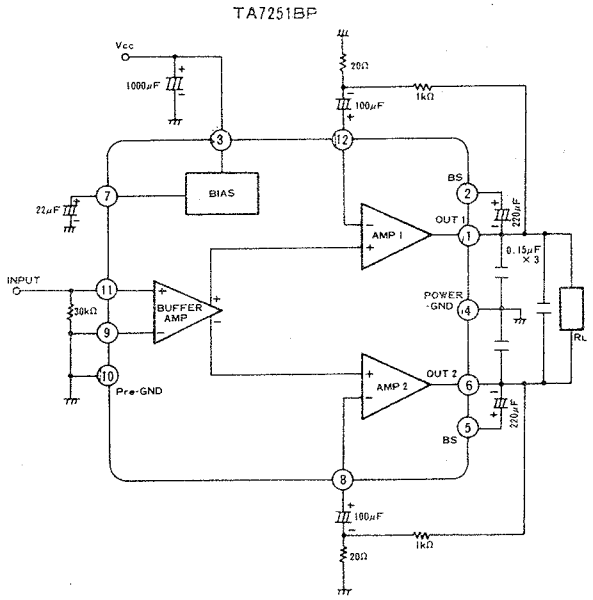
CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	ICCQ		VIN=0		120	200	mA
Output Power	POUT(1)		THD=10%	20	23		W
	POUT(2)		RL=2ohm	24	30		W
	POUT(3)		THD=1%, f=50Hz ~20kHz		18		W
Total Harmonic Distortion	THD		POUT=4W		0.015	0.1	%
Voltage Gain	GV		VIN=−50dBm	39.5	41	42.5	dB
Output Noise Voltage	VNO(1)		Rg=0, DIN45405 Noise Filter		0.25		mVrms
	VNO(2)		Rg=10kohm, BW=20Hz~20kHz		0.35	0.9	mVrms
Ripple Rejection Ratio	R.R		f=100Hz Vripple=0dBm		47		dB

BLOCK DIAGRAM and TEST CIRCUIT

TA7250BP



TA7251BP



TA7411AP 051-0798-00 / TA7411AP-CLA 051-0798-01 FM IF System

Refer to the description in Manual PE-9092A(969HX)

μPD1714G-526-12 051-0794-00 PLL Frequency Synthesizer & Tuner Controller

Refer to the description in Manual PE-9092A(969HX)

■PARTS LIST:

◎Electrical section

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D 101.103.104.301 302.601~611 613.614.617.619 620.622.623.624 627.650.705.901	001-0330-00	Diode (1SS119)	28
D_{626}	001-0334-00	Diode (DSA17B)	1
$D_{613,614}$	001-0360-00	Diode (S5566B)	2
D_{621}	001-0361-00	Diode (1SS198)	1
$D_{102,615}$	001-0423-13	Diode (MA4033)	2
$D_{616,625}$	001-0423-19	Diode (MA4056)	2
D_{612}	001-0423-23	Diode (MA4082)	1
IFT_{101}	005-0836-00	IF-transformer (MA)	1
IFT_{102}	005-0976-00	IF-transformer (IFT)	1
L_{601}	009-0642-00	Choke	1
L_{102}	010-2046-12	Coil (2.2μH)	1
$L_{101,801}$	010-2046-17	Coil (5.6μH)	2
VR_{102}	012-3808-05	Variable resistor (4.7kΩ VR)	1
$VR_{101,401}$	012-3808-06	Variable resistor (10kΩ VR)	2
VR_{103}	012-3808-11	Variable resistor (220kΩ VR)	1
CCT_{601}	050-0078-02	Component circuit	1
IC_{301}	051-0158-00	IC (TC4016BP)	1
IC_{201}	051-0301-02	IC (M51522AL)	1
IC_{901}	051-0526-00	IC (MB3756)	1
IC_{401}	051-0606-00	IC (BT3S501)	1
IC_{402}	051-0619-00	IC (LB0354)	1
IC_{501}	051-0748-00	IC (TA7250BP)	1
IC_{601}	051-0794-00	IC (μPD1714G-526-12)	1
IC_{101}	051-0798-00	IC (TA7411AP)	1
IC_{502}	051-0815-00	IC (TA7251BP)	1
SUP_{101}	060-0122-00	Surge protector	1
X_1	061-1053-61	Crystal (4.5MHz)	1
$Q_{601.602.901.904}$	100-1175-60	Transistor (2SA1175F)	4
Q_{303}	101-0911-00	Transistor (2SB911M.P.O,R)	1
Q_{602}	102-1846-00	Transistor (2SC1846O,R,S)	1
Q 201.202.301.607 611.803.804	102-2458-00	Transistor (2SC2458)	7
Q 101.102.103.304 603.604.801	102-2458-51	Transistor (2SC2458GR,BL)	7
Q 302.605.610.612 90.903	102-3400-00	Transistor (2SC3400AC)	6
$Q_{104.105.401}$	103-1450-50	Transistor (2SD1450ST)	3
$Q_{802.805}$	108-0161-28	FET (2SK161GR)	2
$R_{506.508.510.511}$	111-1020-91	Film resistor (¼Ws1kΩ±2%)	4
$R_{505.508.509.512}$	111-2200-91	Film resistor (¼Ws22Ω±2%)	4
R_{108}	111-2231-81	Film resistor (½Ws22kΩ) PE-9096A-A	1
R_{309}	111-2291-81	Film resistor (½Ws2.2Ω)	1
R_{108}	111-5631-81	Film resistor (½Ws56kΩ) PE-9097A-A	1
$C_{103.104.111}$	043-0165-20	Ceramic capacitor (0.1μF SR)	3

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C 120.201.202.805 806	160-1022-05	Ceramic capacitor (1000pF B) HD	5
C_{117}	160-1512-05	Ceramic capacitor (150pF B) HD	1
C_{118}	160-5612-05	Ceramic capacitor (560pF B) HD	1
C 106.107.108.109 113.114.121.211 212.602.802.803 905	171-1032-06	Ceramic capacitor (0.01μF SR) SC	13
$C_{501.502}$	171-2222-06	Ceramic capacitor (0.0022μF SR) SC	2
C 101.102.122.123 611	171-2232-06	Ceramic capacitor (0.022μF SR) SC	5
$C_{518.519}$	171-3332-06	Ceramic capacitor (0.033μF SR) SC	2
$C_{105.801}$	171-4733-06	Ceramic capacitor (0.047μF SR) SC	2
C 506.507.508.513 514.515	173-1542-10	Polyester capacitor (0.15μF K) S	6
$C_{207.208}$	173-6821-10	Polyester capacitor (6800pF J) S	2
C_{110}	174-1007-13	Ceramic capacitor (10pF CH) TC	1
$C_{608.609}$	174-2200-13	Ceramic capacitor (22pF CH) TC	2
C_{901}	042-0358-00	Electrolytic capacitor (10V1000μF)	1
$C_{405.505.516}$	179-2273-22	Electrolytic capacitor (10V220μF) S	3
$C_{509.512.906}$	179-2273-23	Electrolytic capacitor (10V220μF) S	3
C_{610}	179-2283-23	Electrolytic capacitor (10V2200μF) S	1
C_{504}	179-2283-31	Electrolytic capacitor (16V2200μF) S	1
C_{301}	179-3373-33	Electrolytic capacitor (16V330μF) S	1
$C_{412.903}$	179-4763-22	Electrolytic capacitor (10V47μF) S	2
C_{602}	179-4773-22	Electrolytic capacitor (10V470μF) S	1
$C_{902.904}$	179-4773-23	Electrolytic capacitor (10V470μF) S	2
$C_{112.115.126.127}$	182-1053-62	Electrolytic capacitor (50V1μF) SS	4
C 116.402.403.404 406.408.409.410 411.414.415.418 420	182-1063-32	Electrolytic capacitor (16V10μF) SS	13
$C_{503.510.511.517}$	182-1073-12	Electrolytic capacitor (6.3V100μF) SS	4
$C_{612.902.904}$	182-1073-22	Electrolytic capacitor (10V100μF) SS	3
C_{401}	182-1073-32	Electrolytic capacitor (16V100μF) SS	1
$C_{413.416}$	182-2243-62	Electrolytic capacitor (50V0.22μF) SS	2
C_{118}	182-2253-62	Electrolytic capacitor (50V2.2μF) SS	1
C_{601}	182-3353-62	Electrolytic capacitor (50V3.3μF) SS	1
C_{417}	182-4743-62	Electrolytic capacitor (50V0.47μF) SS	1
$C_{203.204.209.210}$	183-1053-62	Electrolytic capacitor (50V1μF) USS	4
$C_{124.125.128}$	183-1063-32	Electrolytic capacitor (16V10μF) USS	3
C_{613}	183-2263-52	Electrolytic capacitor (35V22μF) USS	1
C_{603}	183-3343-62	Electrolytic capacitor (50V0.33μF) USS	1
C_{601}	183-3353-62	Electrolytic capacitor (50V3.3μF) USS	1
C_{106}	183-4743-62	Electrolytic capacitor (50V0.47μF) USS	1
C_{804}	183-4753-52	Electrolytic capacitor (35V4.7μF) USS	1
$C_{205.206}$	183-4763-12	Electrolytic capacitor (6.3V47μF) USS	2
C_{605}	183-4763-32	Electrolytic capacitor (16V47μF) USS	1

◎NC-MPX P.W.B 880-0003A

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
VR_{104}	012-3707-05	Variable resistor (VR10kΩ)	1
VR_{102}	012-3707-08	Variable resistor (VR100kΩ)	1
CCT_{101}	050-0099-00	Component circuit (DN1360E)	1
IC_{104}	051-0407-00	IC (LA2110)	1
IC_{105}	051-0733-00	IC (LA3430)	1
CF_{101}	060-0115-01	Ceramic resonator (CBS456F11)	1
Q_{101}	102-2458-25	Transistor (2SC2458Y)	1
C_{120}	160-6812-05	Ceramic capacitor (68pF B)	1
$C_{125,126}$	171-1033-06	Ceramic capacitor (0.01μF)	2
C_{124}	171-2223-06	Ceramic capacitor (2200pF SR)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
C_{132}	171-2233-06	Ceramic capacitor (0.022μF)	1
C_{123}	171-3333-06	Ceramic capacitor (0.033μF)	1
C_{130}	171-4723-06	Ceramic capacitor (4700PF SR)	1
C_{128}	171-4733-06	Ceramic capacitor (0.047μF)	1
$C_{122,134,136}$	182-1053-62	Electrolytic capacitor (50V1μF)	3
C_{133}	182-1063-32	Electrolytic capacitor (16V10μF)	1
C_{135}	182-2243-62	Electrolytic capacitor (50V0.22μF)	1
C_{121}	182-2263-32	Electrolytic capacitor (16V22μF)	1
C_{129}	182-4753-52	Electrolytic capacitor (35V4.7μF)	1

◎SDK P.W.B 880-0002A

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
VR_{103}	012-3707-05	Variable resistor (VR-10kΩ)	1
CCT_{102}	050-0103-00	Component circuit (TCB06T0006)	1
IC_{103}	051-0501-00	IC (LA3365)	1
IC_{102}	051-0739-00	IC (LA2220)	1
CF_{102}	060-0115-01	Ceramic resonator (CBS456F11)	1
C_{144}	171-4733-06	Ceramic capacitor (0.047μF)	1
C_{138}	173-6831-10	Polyester capacitor (0.068μF)	1
$C_{143,152}$	042-0249-00	Electrolytic capacitor (16V0.22μF TAN)	2
C_{147}	182-1053-62	Electrolytic capacitor (50V1μF)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
$C_{137,145,149}$	182-1063-32	Electrolytic capacitor (16V10μF)	3
C_{146}	182-1073-12	Electrolytic capacitor (6.3V100μF)	1
C_{139}	182-1073-22	Electrolytic capacitor (10V100μF)	1
C_{141}	182-2263-22	Electrolytic capacitor (10V22μF)	1
C_{140}	182-3343-62	Electrolytic capacitor (50V0.33μF)	1
C_{150}	182-4763-02	Electrolytic capacitor (4V33μF)	1
C_{142}	182-4743-62	Electrolytic capacitor (50V0.47μF)	1
C_{148}	182-4753-52	Electrolytic capacitor (35V4.7μF)	1
C_{151}	182-4763-22	Electrolytic capacitor (10V47μF)	1

◎FM FRONT END 880-1407A

Ref. No.	Part No. (Order No.)	Description	Q'ty
D1	001-0368-00	Diode (1SV121)	1
D3	001-0423-13	Diode (MA4033)	1
D2,4,5	001-0442-00	Diode (1SV147)	3
VC1	004-1567-00	Trimer (20P)	1
IFT1	005-0966-00	IF-Transfomer	1
IFT2,3	005-0967-00	IF-Transfomer (MS3LK)	2
L4	010-1570-01	Coil (RF)	1
L1	010-2046-03	Coil (0.039μH)	1
L2	010-2046-14	Coil (3.3μH)	1
L6	010-2104-00	Coil (OSC)	1
L3,5	010-2105-00	Coil (L4.5T)	2
IC1	051-0730-00	IC (HA12438FP)	1
R14	117-1011-10	Chip resistor (1/16W 100Ω)	
R6,11,13	117-1021-10	Chip resistor (1kΩ)	3
R12	117-1031-10	Chip resistor (10kΩ)	1
R3,7	117-1041-10	Chip resistor (100kΩ)	2
R5	117-2211-10	Chip resistor (220Ω)	1

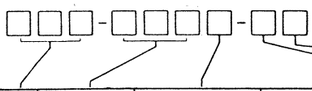
Ref. No.	Part No. (Order No.)	Description	Q'ty
R2,9,10	117-3331-10	Chip resistor (33kΩ)	3
R8	117-4701-10	Chip resistor (47Ω)	1
R4	117-6831-10	Chip resistor (68Ω)	1
Q3	124-0114-15	Transistor (3SK114)	1
Q1	125-0001-01	Transistor (UN2111)	1
Q2	125-0006-00	Transistor (UN2110)	1
C11	176-1007-00	Ceramic chip capacitor (10pF)	1
C3,6,18	176-1501-00	Ceramic chip capacitor (15pF)	3
C14,15,16	176-2201-00	Ceramic chip capacitor (22pF)	3
C4	176-5601-00	Ceramic chip capacitor (56pF)	1
C5,9,13	176-6097-00	Ceramic chip capacitor (6pF)	3
C2	176-8097-00	Ceramic chip capacitor (8pF)	1
C21	178-1022-05	eramic chip capacitor (0.001μF)	1
C1,7,8,10,17	178-1032-05	Ceramic chip capacitor (0.01μF)	5
C12,19	178-2232-05	Ceramic chip capacitor (0.022μF)	2
C20	183-1053-62	Electrolytic capacitor (50V 1μF)	1

Note : OM (Oxidized Metal)
S (Small)
HD (Higher Dielectric)
SC (Semi-Conductor)
SS (Super Small)
TC (Temperature-Compensating)
LL (Low Leak)
USS (Ultra Super Small)

● How to read resistor

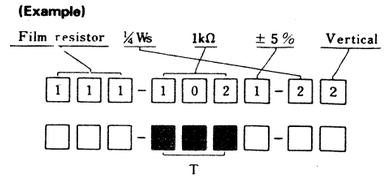
Resistors are deleted from the table of electric components, (except metal film resistors and special resistors). They can be converted to product Nos. as follows.

Film resistor (Carbon film resistor)



Classification	Resistance *		Tolerance of the value of resistance		Rated power			Shape	
1 1 1		0		0			0		
	Example	1	± 5 %	1	1/8W	Approx. 3.7mm	1	Horizontal	
	33Ω = 330	2		2	1/4Ws	Approx. 6.5mm	2	Vertical	
	33kΩ = 333	3		3			3		
		4		4	1/2W	Approx. 9mm	4		
				7	1/6W	Approx. 3.5mm			
				8	1/2Ws	Approx. 6.6mm			
				9	1/4Wss	Approx. 3.2mm			

(Example)



Note 1. The first two of three digits representing resistance are effective digits and the last one represents number of "0" following this.
Unit is given in ohm (Ω).

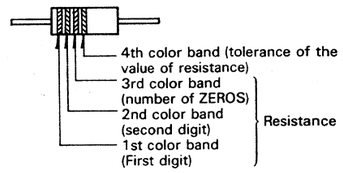
Example of conversion of resistance T

Note) R : Resistance, T : Converted value

R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T	R	T
Ω 0.1	108	Ω 1.0	109	Ω 10	100	Ω 100	101	kΩ 1.0	102	kΩ 10	103	kΩ 100	104	MΩ 1.0	105	MΩ 10	106	MΩ 100	107
0.15	158	1.5	159	15	150	150	151	1.5	152	15	153	150	154	1.5	155	15	156	150	157

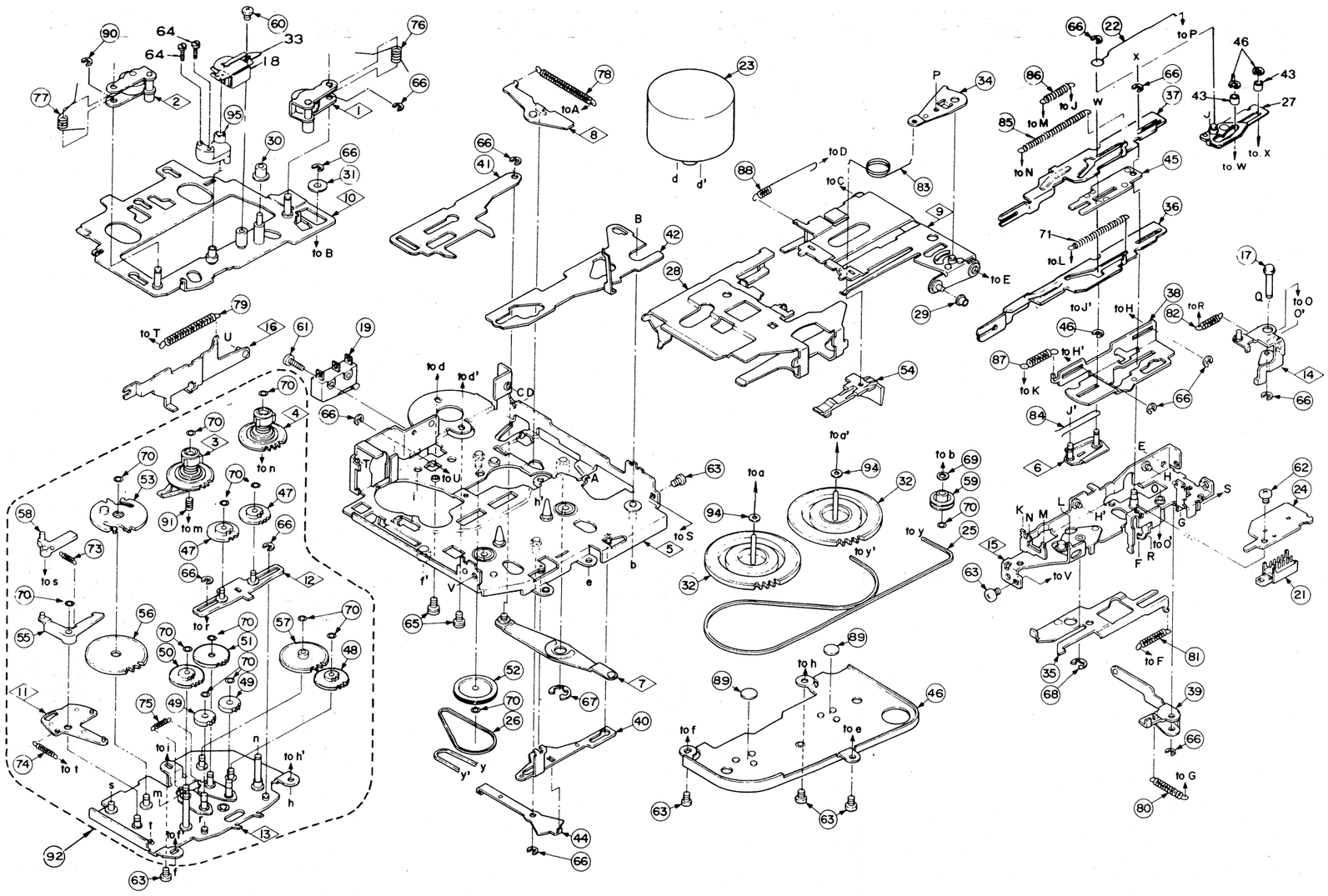
COLOR	BLK	BRN	RED	ORG	YEL	GRN	BLU	PUR	GRY	WHT	GOLD	SILVER	NO COLOR
1st color band	0	1	2	3	4	5	6	7	8	9			
2nd color band	0	1	2	3	4	5	6	7	8	9			
3rd color band	10^0	10^1	10^2	10^3	10^4	10^5	10^6				10^{-1}	10^{-2}	
4th color band											± 5 % (J)	± 10% (K)	± 20% (M)

*


4th color band (tolerance of the value of resistance)
3rd color band (number of ZEROS)
2nd color band (second digit)
1st color band (First digit)
Resistance

■EXPLODED VIEW • PARTS LIST:

◎Tape mechanism section



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3321-06	Roller F ass'y	1
2	960-3322-06	Roller R ass'y	1
3	960-3323-01	Reel base ass'y	1
4	960-3324-01	Reel base ass'y	1
5	960-3325-08	Deck plate ass'y	1
6	960-3568-02	Spring H ass'y	1
7	960-3328-04	Coupling P ass'y	1
8	960-3329-01	Link ass'y	1
9	960-3330-07	Guide arm ass'y	1
10	960-3562-05	Head plate ass'y	1
11	960-3332-03	Check P-B ass'y	1
12	960-3333-02	FF plate ass'y	1
13	960-3334-07	Bottom P ass'y	1
14	960-3577-03	Lock plate ass'y	1

REF.NO	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
15	960-3567-04	Frame ass'y	1
16	960-3339-02	Program lever ass'y	1
17	632-1153-01	Lock plate pin	1
18	011-0296-10	Head	1
19	013-2690-03	Switch	1
20	750-2155-00	Spring	1
21	013-3646-00	Switch	1
22	750-2360-01	Spring	1
23	SMA-107-100	D.C. motor ass'y	1
24	099-6942-01	P.W.B	1
25	602-0068-00	Belt-A	1
26	602-0069-00	Belt-B	1
27	960-3565-01	Over plate ass'y	1
28	606-0071-07	Pack guide	1

949HP 940HP

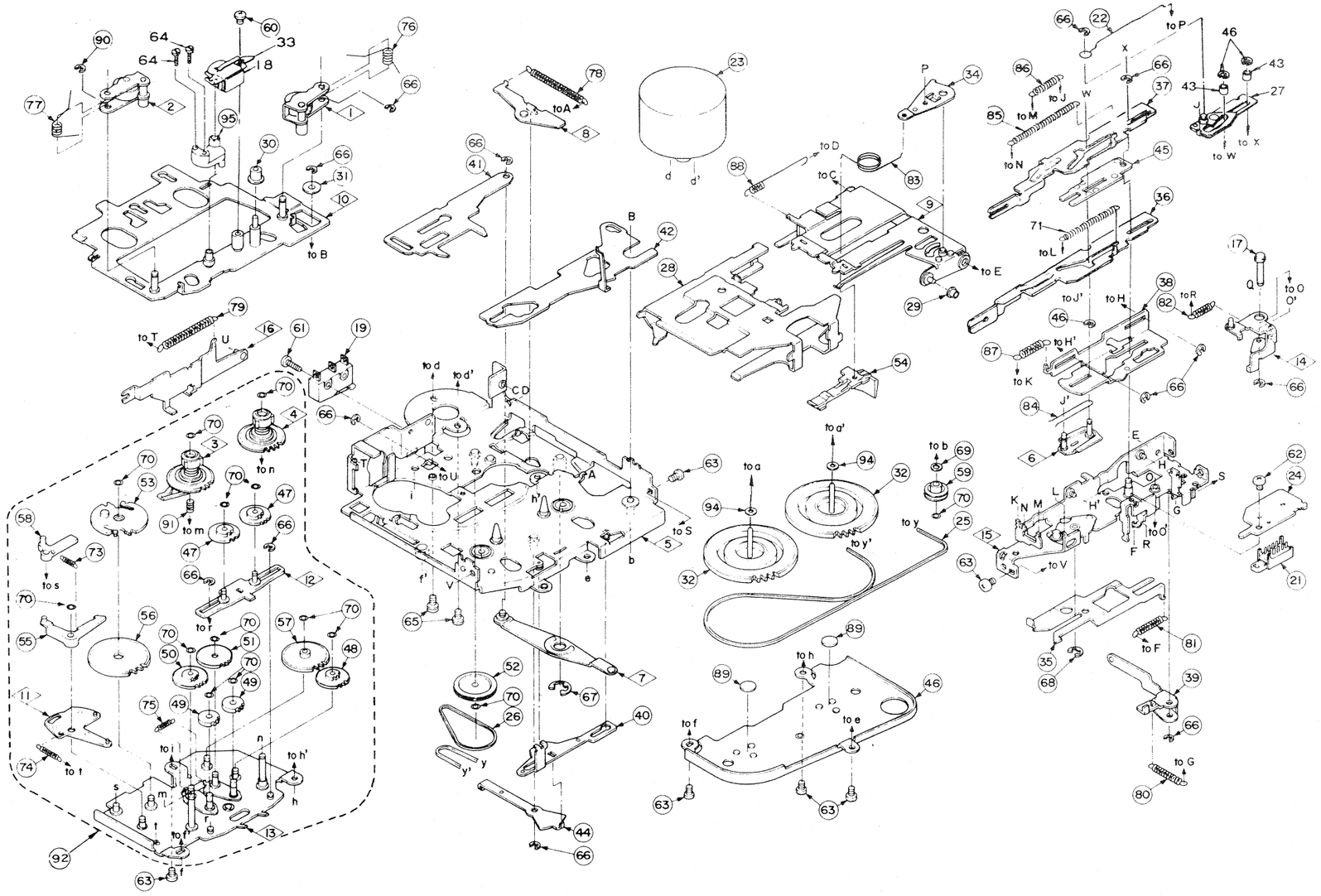
REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
29	610-0080-00	Roller	1
30	610-0258-01	Head P-roller	1
31	610-0104-02	Roller	1
32	611-0062-02	Flywheel	2
33	630-1689-01	Head spring	1
34	630-1394-03	Swing plate	1
35	630-1399-04	Off plate-B	1
36	630-1881-00	FF lever-A	1
37	630-1882-00	REW lever	1
38	960-3563-02	Eject plate ass'y	1
39	630-1405-01	Off arm	1
40	630-1407-03	FF plate-B	1
41	630-1410-00	Power plate	1
42	630-1691-01	Change plate	1

949HP 940HP

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
43	632-1557-00	Roller	2
44	630-1420-00	FF link	1
45	630-1671-01	Hold plate	1
46	630-1415-01	Flywheel plate	1
47	631-0353-00	FF-REW gear	2
48	631-0354-01	Gear-B	1
49	631-0355-01	Play idler gear	2
50	631-0356-00	Gear-R	1
51	631-0357-00	Gear-F	1
52	631-0358-02	Gear pulley	1
53	960-3506-01	Power gear ass'y	1
54	631-0455-02	Pack stopper	1
55	631-0361-01	Lock link	1
56	631-0362-01	Cam gear	1
57	631-0363-02	Gear-A	1
58	631-0364-03	Sub lock link	1
59	631-0370-00	Tension pulley	1
60	714-2003-81	Machine screw (M2x3)	1
61	714-2308-81	Machine screw (M2.3x8)	1
62	716-0485-00	Screw	1
63	714-2604-81	Machine screw (M2.6x4)	6
64	716-0654-01	Screw (for Head azimuth)	2
65	716-0690-00	Screw	2
66	743-1500-10	E-ring	12
67	743-4000-10	E-ring	1
68	744-0006-01	E-ring	1
69	745-0645-00	Washer	2
70	746-0628-01	Washer	14
71	750-2357-02	Spring	1
72	630-1690-00	Adjust plate	1
73	750-2134-01	Spring	1
74	750-2135-01	Spring	1
75	750-2136-02	Spring	1
76	750-2372-01	Spring	1
77	750-2378-01	Spring	1
78	750-2139-01	Spring	1
79	750-2140-02	Spring	1
80	750-2141-01	Spring	1
81	750-2142-03	Spring	1
82	750-2374-00	Spring	1
83	750-2361-01	Spring	1
84	750-2199-00	Spring	1
85	750-2356-02	Spring	1
86	750-2359-00	Spring	1
87	750-2358-00	Spring	1
88	750-2150-00	Spring	1
89	631-0293-00	Thrust washer	2
90	743-2000-10	E-ring	2
92	960-3580-02	Bottom sub ass'y	1
94	746-0617-00	Washer	2
95	631-0456-00	Adjust link	1

■EXPLODED VIEW • PARTS LIST:

◎Tape mechanism section



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3321-06	Roller F ass'y	1
2	960-3322-06	Roller R ass'y	1
3	960-3323-01	Reel base ass'y	1
4	960-3324-01	Reel base ass'y	1
5	960-3325-08	Deck plate ass'y	1
6	960-3568-02	Spring H ass'y	1
7	960-3328-04	Coupling P ass'y	1
8	960-3329-01	Link ass'y	1
9	960-3330-07	Guide arm ass'y	1
10	960-3562-05	Head plate ass'y	1
11	960-3332-03	Check P-B ass'y	1
12	960-3333-02	FF plate ass'y	1
13	960-3334-07	Bottom P ass'y	1
14	960-3577-03	Lock plate ass'y	1

REF.NO	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
15	960-3567-04	Frame ass'y	1
16	960-3339-02	Program lever ass'y	1
17	632-1153-01	Lock plate pin	1
18	011-0296-10	Head	1
19	013-2690-03	Switch	1
20	750-2155-00	Spring	1
21	013-3646-00	Switch	1
22	750-2360-01	Spring	1
23	SMA-107-100	D.C. motor ass'y	1
24	099-6942-01	P.W.B	1
25	602-0068-00	Belt-A	1
26	602-0069-00	Belt-B	1
27	960-3565-01	Over plate ass'y	1
28	606-0071-07	Pack guide	1

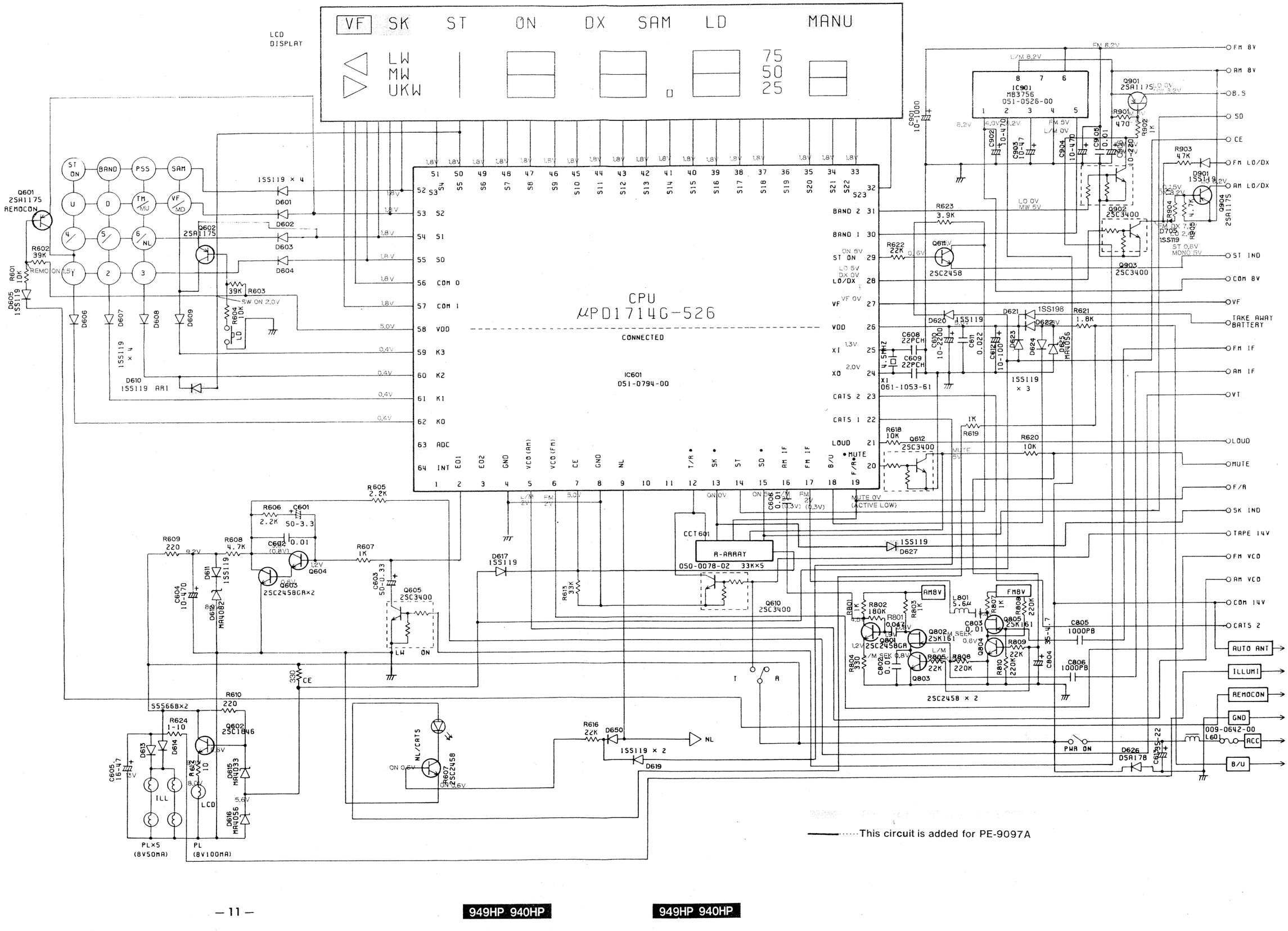
949HP 940HP

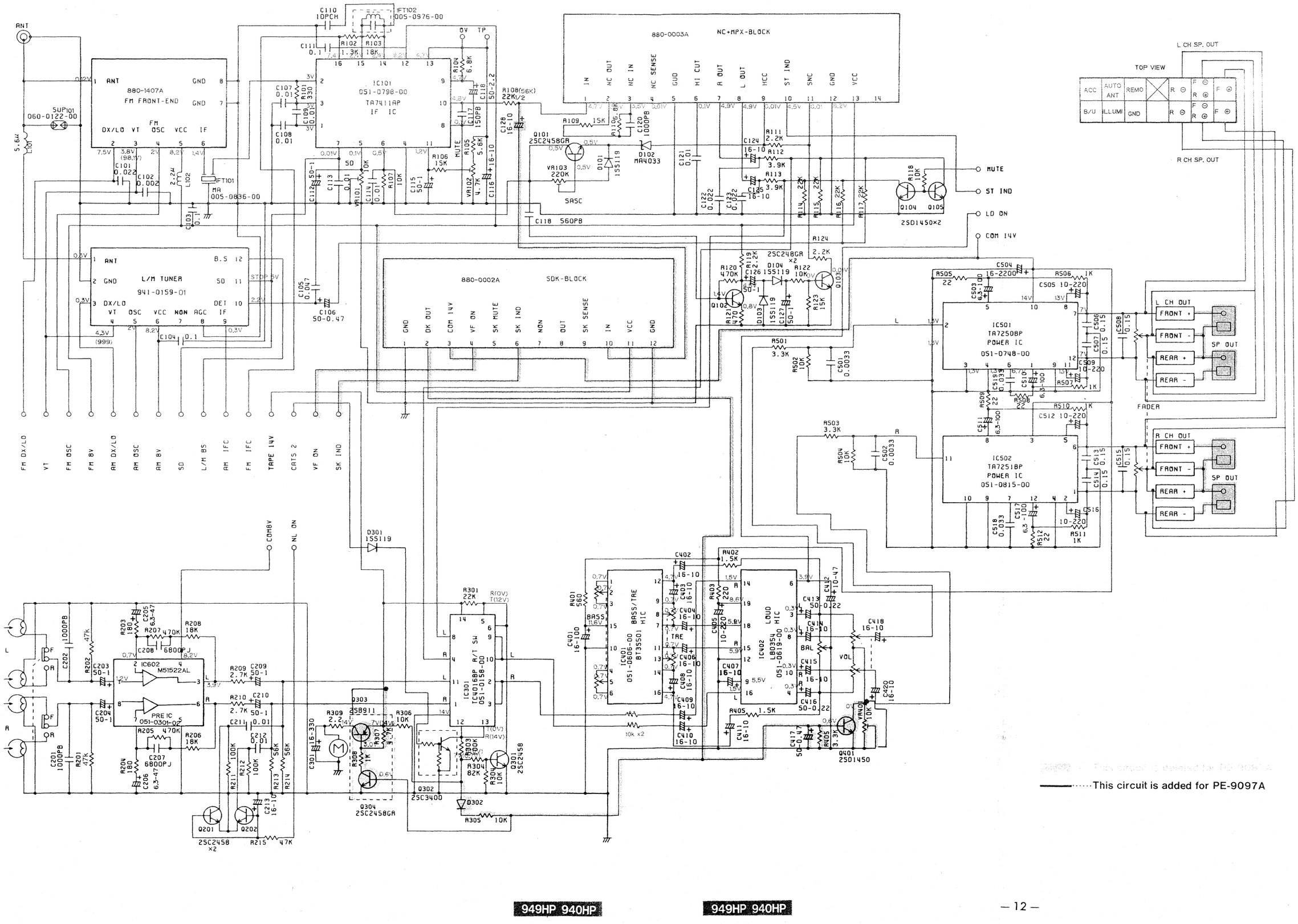
REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
29	610-0080-00	Roller	1
30	610-0258-01	Head P-roller	1
31	610-0104-02	Roller	1
32	611-0062-02	Flywheel	2
33	630-1689-01	Head spring	1
34	630-1394-03	Swing plate	1
35	630-1399-04	Off plate-B	1
36	630-1881-00	FF lever-A	1
37	630-1882-00	REW lever	1
38	960-3563-02	Eject plate ass'y	1
39	630-1405-01	Off arm	1
40	630-1407-03	FF plate-B	1
41	630-1410-00	Power plate	1
42	630-1691-01	Change plate	1

949HP 940HP

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
43	632-1557-00	Roller	2
44	630-1420-00	FF link	1
45	630-1671-01	Hold plate	1
46	630-1415-01	Flywheel plate	1
47	631-0353-00	FF-REW gear	2
48	631-0354-01	Gear-B	1
49	631-0355-01	Play idler gear	2
50	631-0356-00	Gear-R	1
51	631-0357-00	Gear-F	1
52	631-0358-02	Gear pulley	1
53	960-3506-01	Power gear ass'y	1
54	631-0455-02	Pack stopper	1
55	631-0361-01	Lock link	1
56	631-0362-01	Cam gear	1
57	631-0363-02	Gear-A	1
58	631-0364-03	Sub lock link	1
59	631-0370-00	Tension pulley	1
60	714-2003-81	Machine screw (M2x3)	1
61	714-2308-81	Machine screw (M2 3x8)	1
62	716-0485-00	Screw	1
63	714-2604-81	Machine screw (M2 6x4)	6
64	716-0654-01	Screw (for Head azimuth)	2
65	716-0690-00	Screw	2
66	743-1500-10	E-ring	12
67	743-4000-10	E-ring	1
68	744-0006-01	E-ring	1
69	745-0645-00	Washer	2
70	746-0628-01	Washer	14
71	750-2357-02	Spring	1
72	630-1690-00	Adjust plate	1
73	750-2134-01	Spring	1
74	750-2135-01	Spring	1
75	750-2136-02	Spring	1
76	750-2372-01	Spring	1
77	750-2378-01	Spring	1
78	750-2139-01	Spring	1
79	750-2140-02	Spring	1
80	750-2141-01	Spring	1
81	750-2142-03	Spring	1
82	750-2374-00	Spring	1
83	750-2361-01	Spring	1
84	750-2199-00	Spring	1
85	750-2356-02	Spring	1
86	750-2359-00	Spring	1
87	750-2358-00	Spring	1
88	750-2150-00	Spring	1
89	631-0293-00	Thrust washer	2
90	743-2000-10	E-ring	2
92	960-3580-02	Bottom sub ass'y	1
94	746-0617-00	Washer	2
95	631-0456-00	Adjust link	1

■CIRCUIT DIAGRAM:

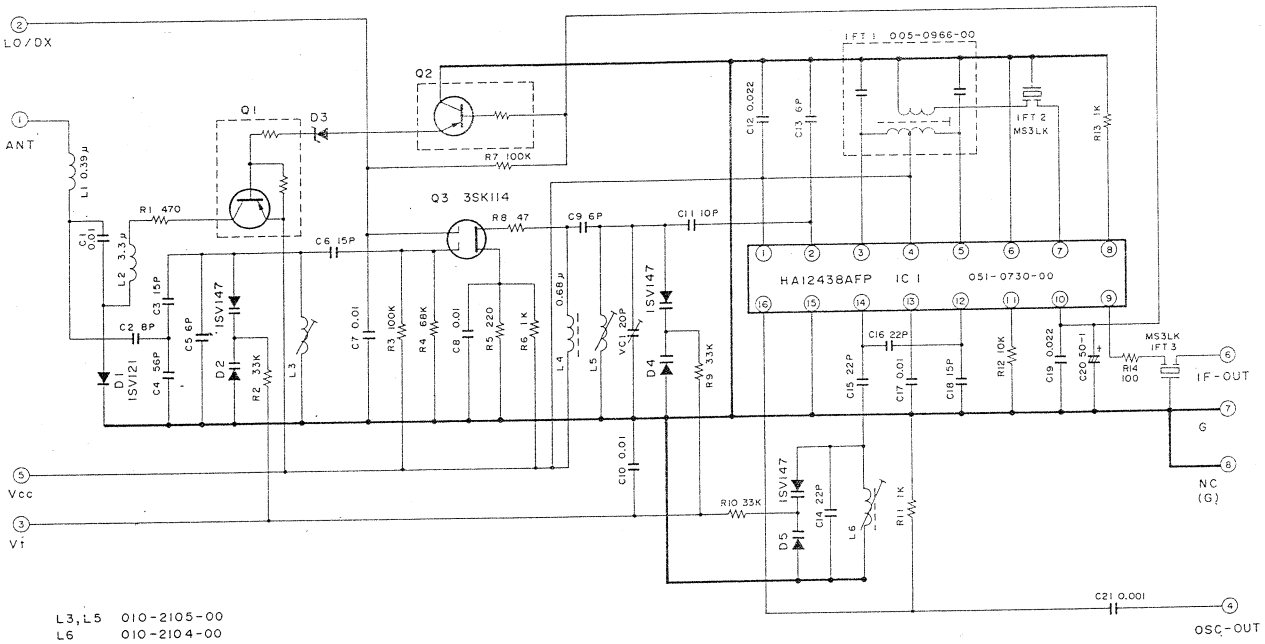




949HP 940HP

949HP 940HP

FM FRONT END: 880-1407A



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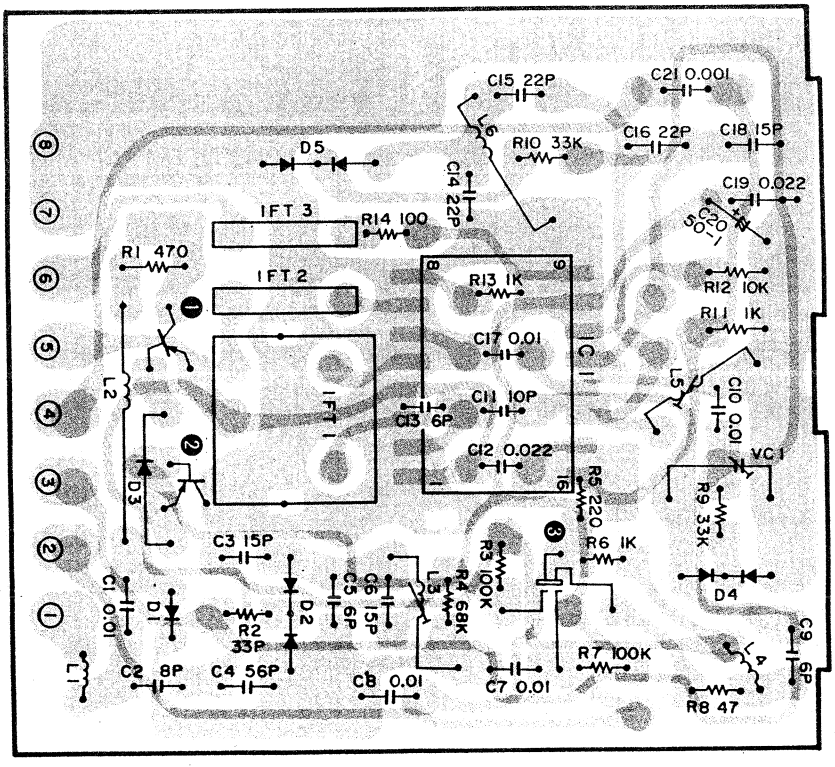
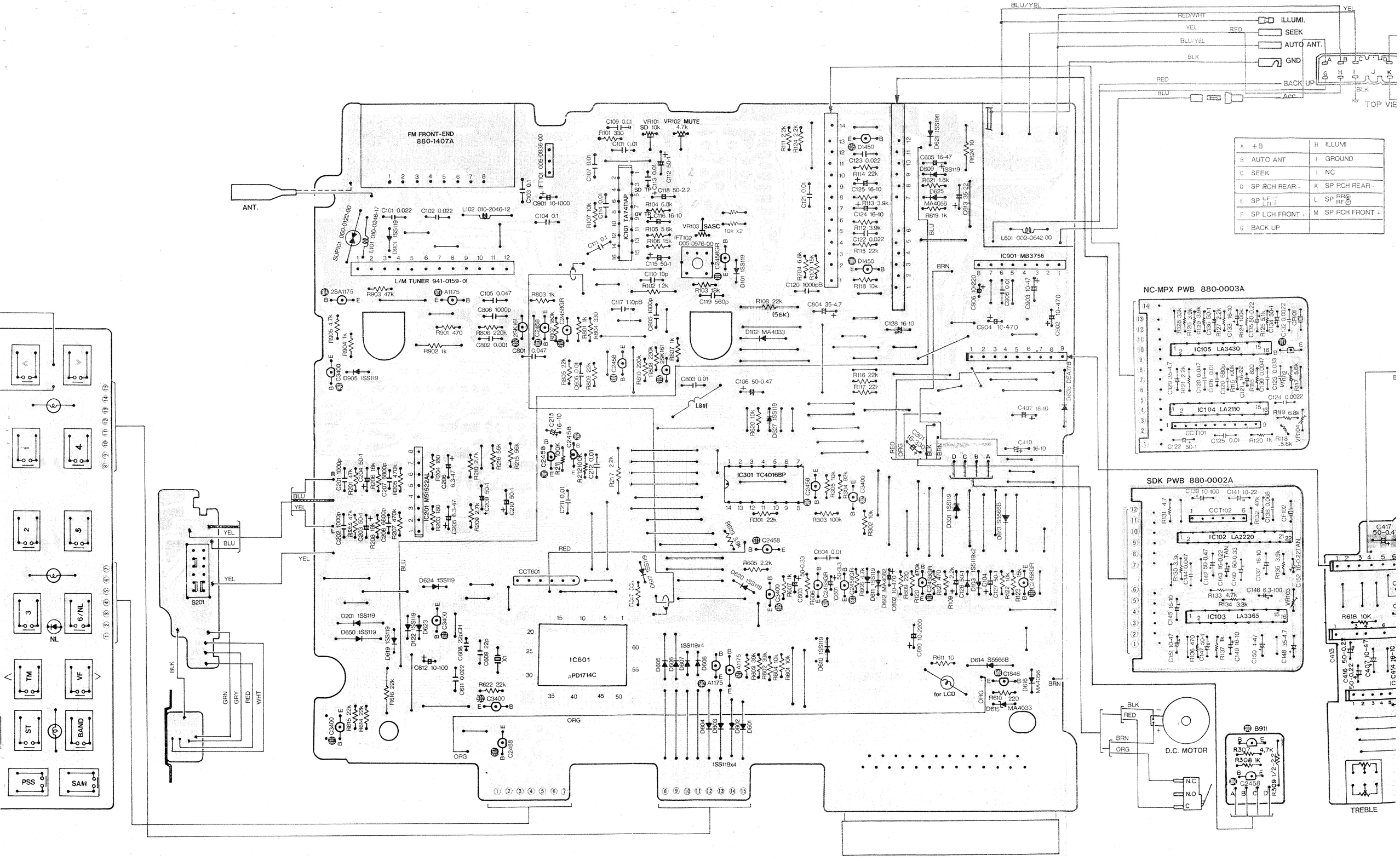
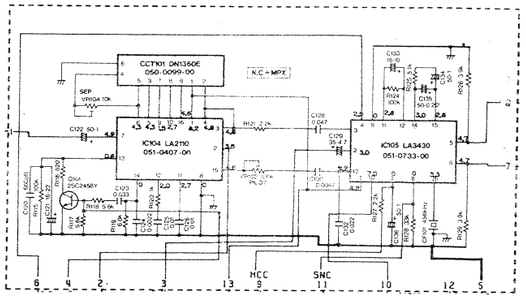
L6 010-2104-00
Q1 RN2402, UN2111
Q2 UN2110S
D3 001-0423-13



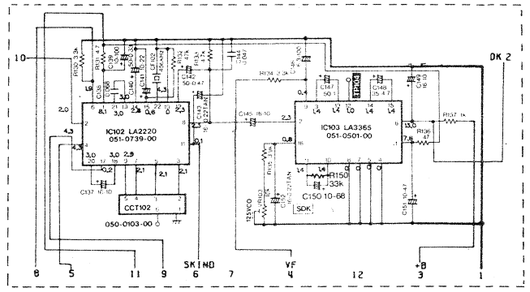
PRINTED WIRING BOARD:



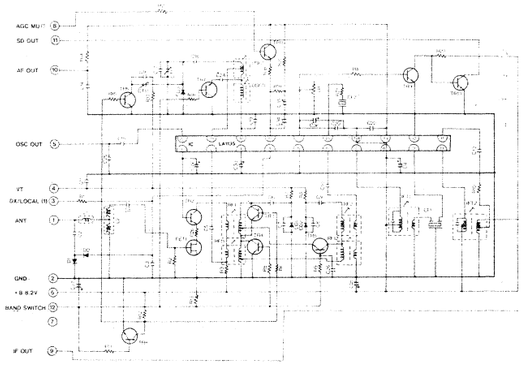
NC-MPX BLOCK Ass'y 880-0003A



SDK BLOCK Ass'y 880-0002A



L/M TUNER 941-0159-01



A	+B	H	ILLUMI
B	AUTO ANT	I	GROUND
C	SEEK	J	NC
D	SP RCH REAR -	K	SP RCH REAR +
E	SP LCH FRONT + / LCH REAR +	L	SP RCH FRONT + / RCH REAR +
F	SP LCH FRONT -	M	SP RCH FRONT -
G	BACK UP		

NC-MPX PWB 880-0003A

SDK PWB 880-0002A

949HP 940HP

949HP 940HP

——·····This circuit is added for PE-909 7A